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(54) Apparatus for data copyright management system

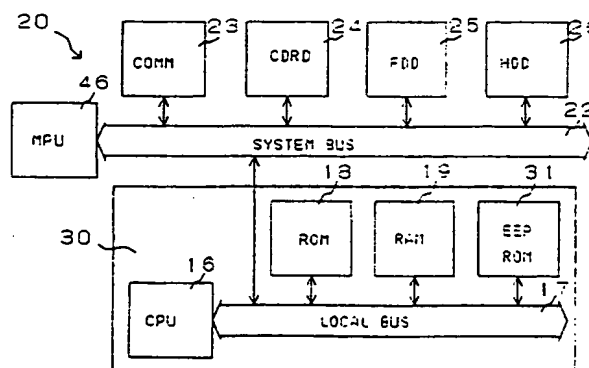
(57) A data copyright management apparatus is used with a user terminal and comprises a CPU, a CPU bus, ROM, EEPROM, and RAM.

The CPU, ROM, EPROM, and RAM are connected to the CPU bus, and a system bus of a device which utilizes the data can be connected to the CPU bus. A data copyright management system program, a crypt algorithm, and user information are stored in the ROM, and a second private-key, a permit key, a second secret-key, and copyright information are stored in the EEPROM. A first public-key, a first private-key, a second public-key, and a first secret-key are transmitted to the RAM during the operation. The data copyright management apparatus may be configured in the form of a monolithic IC or hybrid IC, a thin IC card, PC card, or an expansion board. If the copyright management program is provided from the outside, then it is stored in the EEPROM, otherwise it is stored in ROM.

In addition to a microprocessor in the user terminal which decrypts encrypted data for displaying and processing purposes and re-encrypts the decrypted data for storing, copying, or transferring purposes, at least one other microprocessor, desirably two other microprocessors, are added for decrypting and re-encrypting data. The microprocessors to be added may be connected to the system bus of the microprocessor of the user terminal. However, to allow concurrent microprocessor operation it is desirable that the multiprocessor configuration is implemented by using a SCSI bus, PCI bus, or SCI bus. The data copyright management apparatus may be implemented in the form of

a monolithic IC, a hybrid IC, or a built-in subboard, and the apparatus in these forms is incorporated in a computer, television set, set-top box, digital video tape recorder, digital video disk recorder, digital audio tape apparatus, or personal digital assistants, and the like.

Fig. 3





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EUROPEAN SEARCH REPORT

Application Number
EP 95 11 6615

DOCUMENTS CONSIDERED TO BE RELEVANT			Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Category	Citation of document with indication, where appropriate, of relevant passages			
A	EP 0 430 734 A (SCHLUMBERGER IND SA) 5 June 1991 * column 3, line 17 - line 37 * * column 4, line 4 - column 5, line 24; figures 1,2 *	1,2,4,7,8	G06F1/00 H04N7/167	
A	WO 90 02382 A (INDATA CORP) 8 March 1990 * page 35, paragraph 2 - page 38, paragraph 4; figures 10,12 *	1,2,7,8		
A	EP 0 121 853 A (BURROUGHS CORP) 17 October 1984 * page 3, line 30 - page 4, line 12; figure 1 *	1,2,7,8		
A	US 4 352 952 A (BOONE CHARLES A ET AL) 5 October 1982 * abstract; figures 1,2 *	7,8		
The present search report has been drawn up for all claims				TECHNICAL FIELDS SEARCHED (Int.Cl.6) G06F H04N
Place of search THE HAGUE		Date of completion of the search 1 December 1998	Examiner Moens, R	
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document		

EPO FORM 1503 03/82 (P04C01)

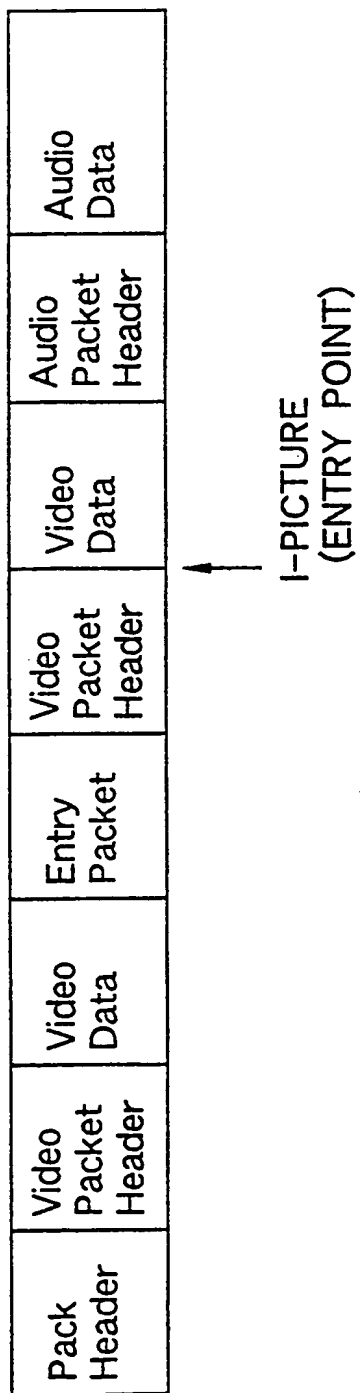


Fig. 13

14/20

PACKET START CODE PREFIX	ID	LENGTH	*** ID	*** PACKET TYPE	CURRENT # DATA STREAMS	CURRENT # VIDEO STREAMS	CURRENT # AUDIO STREAMS	-3	-2	-1	+1	+2	+3
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FIG. 14

15 / 20

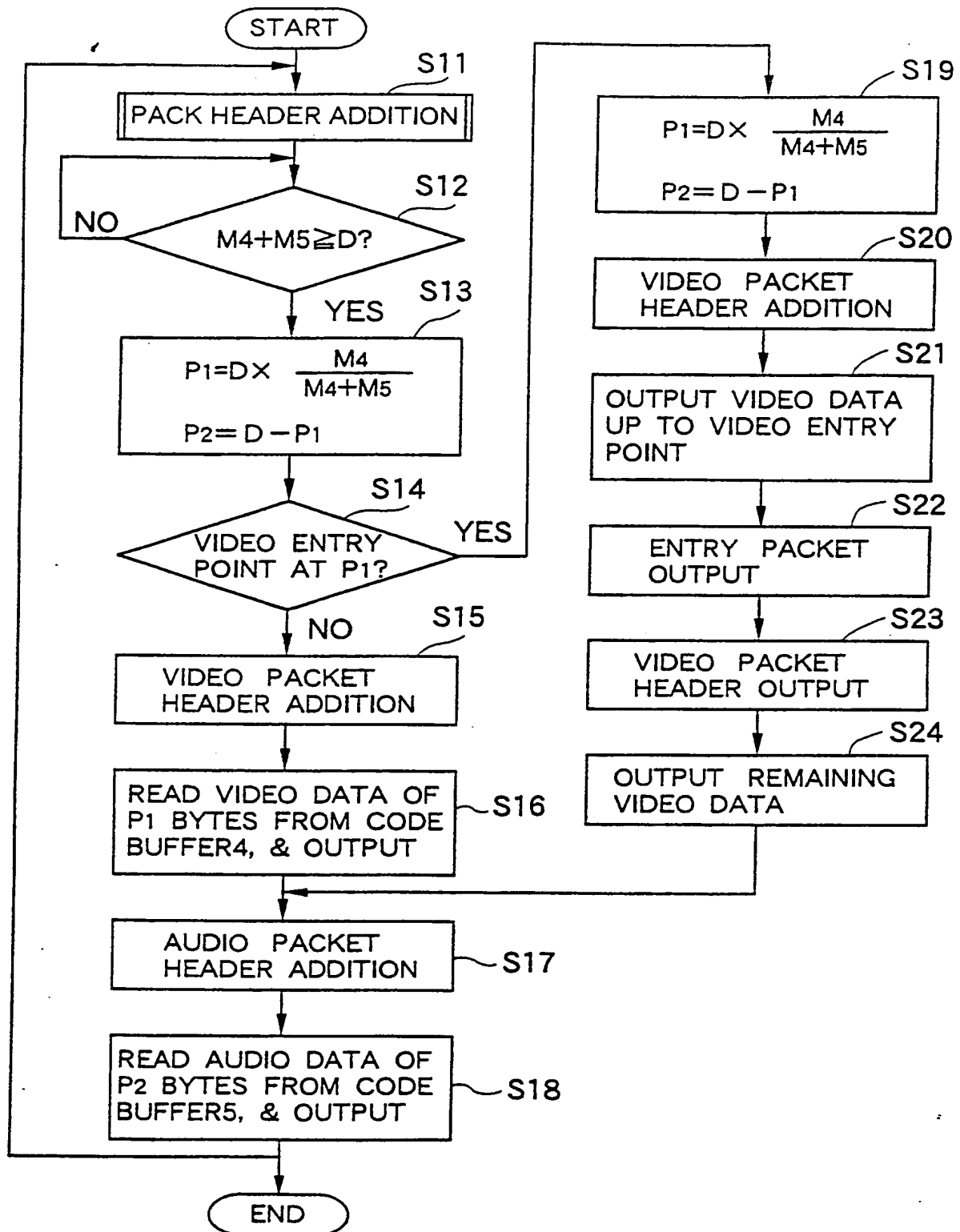


Fig. 15

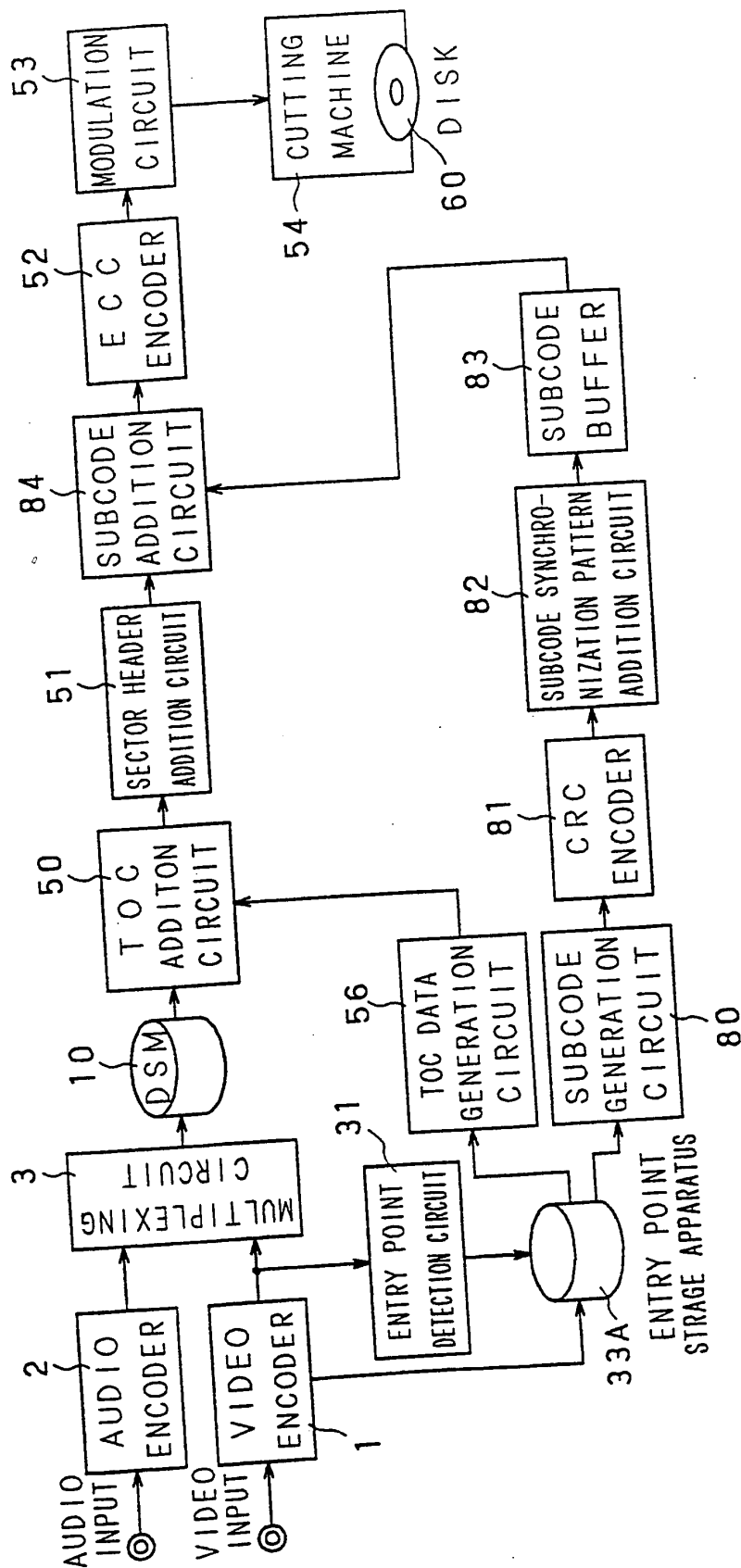


FIG. 16

17/20

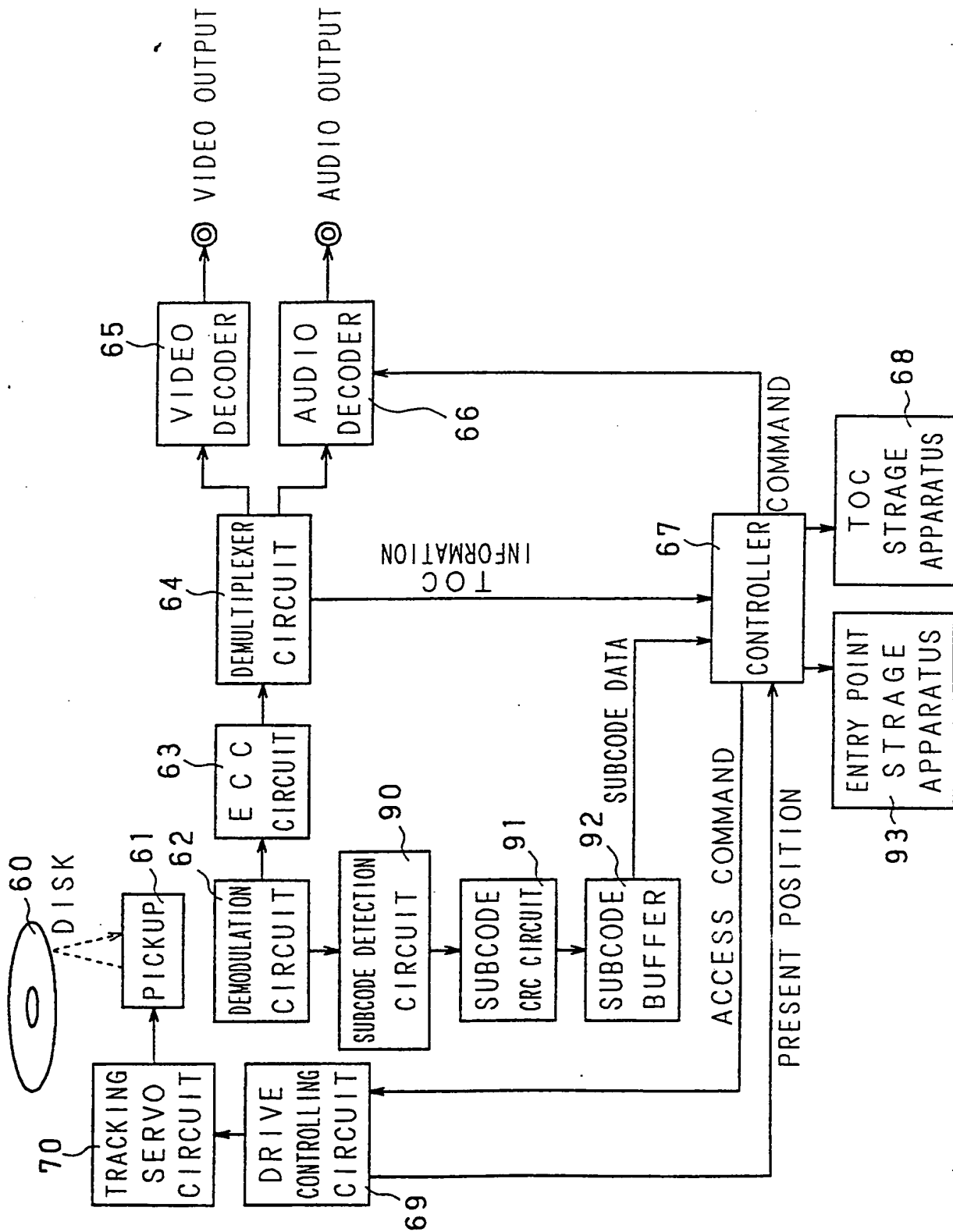


Fig. 17

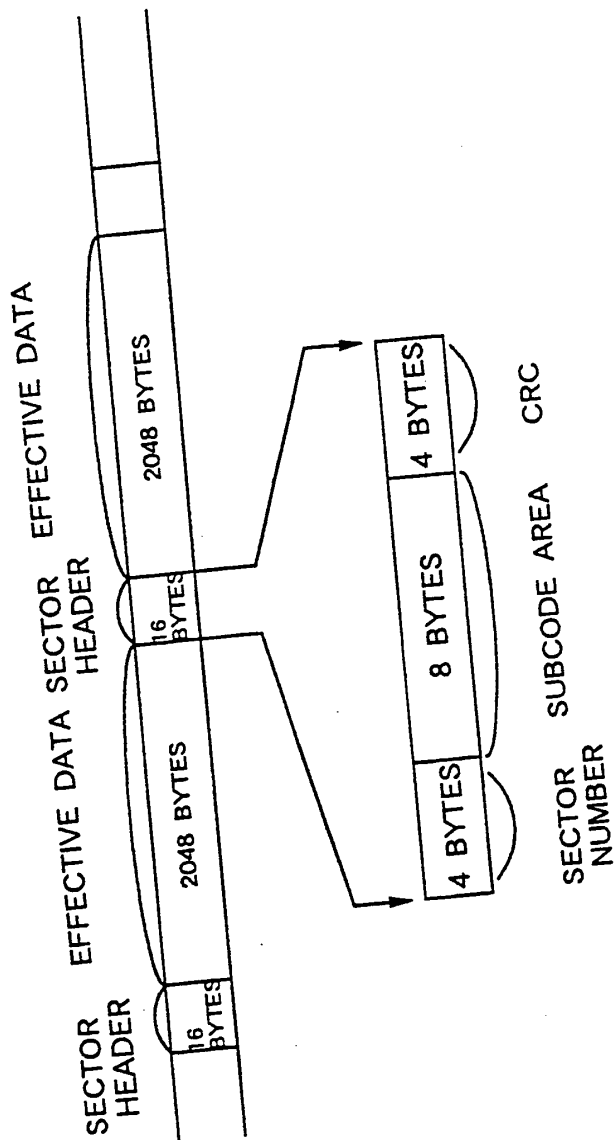


FIG. 18

19/20

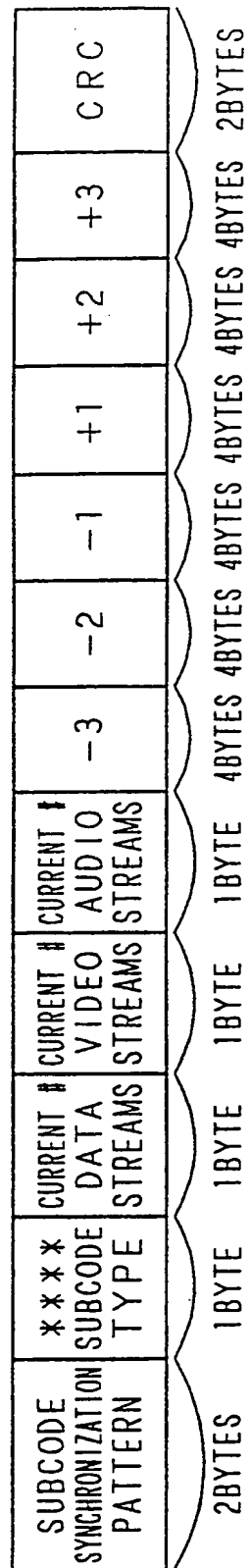


FIG. 19

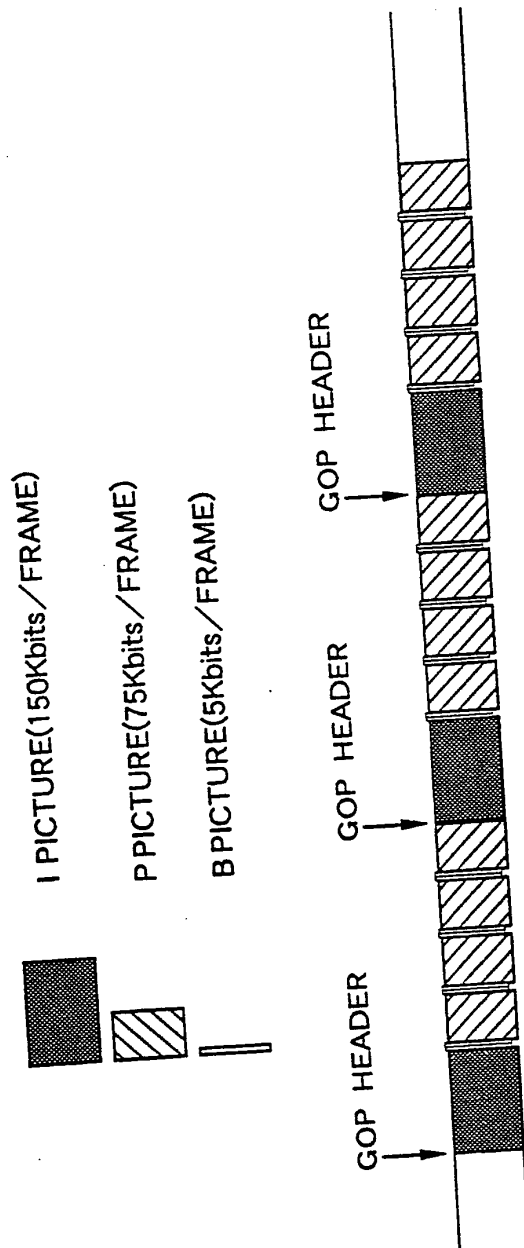


FIG. 20

A. CLASSIFICATION OF SUBJECT MATTER
IPC 5 H04N5/92

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 5 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SIGNAL PROCESSING. IMAGE COMMUNICATION vol. 2, no. 2, August 1990, AMSTERDAM NL pages 155 - 169 XP243475 PEREIRA ET AL. 'A CCITT compatible coding algorithm for digital recording of moving images' see paragraph 3.3.3 ---	1, 16, 31, 46, 61, 69
A	SIGNAL PROCESSING. IMAGE COMMUNICATION vol. 2, no. 2, August 1990, AMSTERDAM NL pages 127 - 144 XP243473 PURI ET AL. 'Video coding with motion-compensated interpolation for CD-ROM applications' see paragraph 7 - paragraph 7.1 --- -/--	1, 16, 31, 46, 61, 69

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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- *&* document member of the same patent family

Date of the actual completion of the international search

13 December 1993

Date of mailing of the international search report

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Dockhorn, H

INTERNATIONAL SEARCH REPORT

International Application No.
JP 93/01362

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		Relevant to claim No.
Category *	Citation of document, with indication, where appropriate, of the relevant passages	
A	SIGNAL PROCESSING. IMAGE COMMUNICATION vol. 2, no. 2, August 1990, AMSTERDAM NL pages 171 - 185 XP243476 HERPEL ET AL. 'Adaptation and improvement of CCITT Recommendation Model 8 video coding for digital storage media applications' see paragraph 2	1,16,31, 46,61,69
A	IEEE 1990 INTERNATIONAL CONFERENCE ON CONSUMER ELECTRONICS, DIGEST OF TECHNICAL PAPERS June 1990 pages 46 - 47 XP169759 HERPEL ET AL. 'Video coding for recording on magneto-optical disk' see the whole document	1,16,31, 46,61,69
A	EP,A,0 396 285 (SONY) 7 November 1990	1,16,31, 46,61,69
P,A	EP,A,0 545 323 (SONY) 9 June 1993 see column 9, line 41 - line 50	1,16,31, 46,61,69
P,A	EP,A,0 505 985 (TOSHIBA) 30 September 1992 see abstract	1,16,31, 46,61,69

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern: Application No

PCT/JP 93/01362

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		JP-A- 2301066	13-12-90
		US-A- 5140437	18-08-92

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EP-A-0505985	30-09-92	JP-A- 4298802	22-10-92

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